

What is claimed is:

1. A device management system for managing the quantity of consumables consumed by operation of a device; the system comprising:

5 utilization degree obtaining section for obtaining a utilization degree indicating a degree of utilization of the consumables; generation quantity obtaining section for obtaining the quantity of a product generated by consumption of the consumables; section for counting the number of 10 activations for counting the number of activations of the device; and consumption ratio calculating section for calculating the ratio of the consumption quantity to the generation quantity based on the utilization degree obtained by the utilization degree obtaining section, the generation 15 quantity obtained by the generation quantity obtaining section and the number of activations counted by the section for counting the number of activations.

2. A device management system for managing the quantity of 20 consumables consumed by operation of a device;

the device generating a product generated by consumption of the consumables, based on given data to be generated; and the device management system comprising: generation quantity obtaining section for obtaining the quantity of the 25 product; data quantity obtaining section for obtaining the quantity of generated data; and consumption ratio calculating section for calculating the ratio of the consumption quantity

to the generation quantity based on the generation quantity obtained by the generation quantity obtaining section and the data quantity obtained by the data quantity obtaining section.

5     3.    A printer management system for communicatively connecting a network printer and a printer management terminal for managing the network printer and for managing a consumption quantity of consumables used for printing by the network printer;

10           the network printer comprising: utilization quantity detecting section for detecting a utilization quantity of the consumables; section for detecting the number of printed sheets for detecting the number of sheets of printed matter printed by the network printer; section for counting the number of activations for counting the number of activations of the network printer; and status information sending section for sending status information including the utilization quantity detected by the utilization quantity detecting section, the number of printed sheets detected by the section for detecting 15 the number of printed sheets and the number of activations counted by the section for counting the number of activations, to the printer management terminal; and

20           the printer management terminal comprising: status information receiving section for receiving the status information; and consumption ratio calculating section for calculating the ratio of the consumption quantity to the number 25

of printed sheets based on the status information received by the status information receiving section.

4. The printer management system according to claim 3;  
5 wherein

the printer management terminal further comprises status information storing section for storing the status information;

10 the status information receiving section receives the status information and stores the received status information in the status information storing section; and

15 the consumption ratio calculating section calculates an average consumption quantity per print sheet by specifying the total consumption quantity of the consumables from a predetermined reference point of time based on the utilization quantity included in the status information in the status information storing section, specifying the total number of printed sheets from the predetermined reference point of time based on the total number of printed sheets included in the 20 status information in the status information storing section, specifying the total number of activations from the predetermined reference point of time based on the number of activations included in the status information in the status information storing section, multiplying the total number of activations by a predetermined value, and dividing the 25 multiplication result added to the total consumption quantity by the total number of printed sheets.

5. The printer management system according to claim 4;  
wherein

the printer management terminal further comprises  
5 predetermined value correcting section for specifying the  
total consumption quantity based on the utilization quantity  
included in the status information in the status information  
storing section and correct the predetermined value based on  
the specified total consumption quantity.

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6. The printer management system according to any of claims  
4 and 5; wherein

the network printer further comprises printing section  
for performing printing based on received data to be printed  
15 and printed data quantity detecting section for detecting the  
quantity of printed data;

the status information sending section sends the status  
information including the utilization quantity detected by  
the utilization quantity detecting section, the number of  
20 printed sheets detected by the section for detecting the number  
of printed sheets, the number of activations counted by the  
section for counting the number of activations and the data  
quantity detected by the printed data quantity detecting  
section, to the printer management terminal; and

25 the consumption ratio calculating section compares the  
newest status information and status information immediately  
preceding the newest status information and, if it is

determined that there is change in the data quantity but no change in the utilization quantity, calculates an average consumption quantity per print sheet by specifying an total data quantity from the predetermined reference point of time  
5 based on the data quantity included in the status information in the status information storing section, estimating the total consumption quantity from a predetermined arithmetic expression based on the specified total data quantity, dividing the multiplication result added to the total consumption  
10 quantity by the total number of printed sheets.

7. The printer management system according to claim 6;  
wherein

the predetermined arithmetic expression is for  
15 multiplying the total data quantity by a predetermined coefficient and adding a predetermined constant to the multiplication result.

8. The printer management system according to claim 7;  
20 wherein

the printer management terminal further comprises arithmetic expression correcting section for specifying the total consumption quantity based on the utilization quantity included in the status information in the status information  
25 storing section to correct the predetermined coefficient and the predetermined constant based on the specified total consumption quantity.

9. The printer management system according to any of claims 6 to 8; wherein

the consumption ratio calculating section compares the newest status information and status information immediately preceding the newest status information and, if it is determined that there is change in the data quantity but no change in the utilization quantity, calculates an average consumption quantity per print sheet by specifying the total data quantity within a predetermined period based on the data quantity included in the status information in the status information storing section, estimating the total consumption quantity of the consumables within the predetermined period from the predetermined arithmetic expression, based on the specified total data quantity, specifying the total number of printed sheets within the predetermined period based on the number of printed sheets included in the status information in the status information storing section, specifying the total number of activations within the predetermined period based on the number of activations included in the status information in the status information storing section, multiplying the total number of activations by a predetermined value, and dividing the multiplication result added to the total consumption quantity by the total number of printed sheets.

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10. The printer management system according to claim 9; wherein

the predetermined period is any of the past one day, one week and one month.

11. The printer management system according to any of claims  
5 3 to 10; wherein

the printer management terminal further comprises running cost calculating section for calculating a running cost of the consumables based on the calculation result of the consumption ratio calculating section.

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12. The printer management system according to any of claims  
3 to 11; wherein

the printer management terminal further comprising second consumption ratio calculating section for calculating 15 the ratio of the consumption quantity to the number of printed sheets based on the status information; and

the second consumption ratio calculating section calculates an average consumption quantity per print sheet by specifying the total consumption quantity of the consumables 20 from a predetermined reference point of time based on the utilization quantity included in the status information in the status information storing section, specifying the total number of printed sheets from the predetermined reference point of time based on the number of printed sheets included in the 25 status information in the status information storing section, and dividing the total consumption quantity by the total number of printed sheets.

13. A printer management system for communicatively connecting a network printer and a printer management terminal for managing the network printer, and for managing a 5 consumption quantity of consumables used for printing by the network printer;

the network printer comprising: printing section for performing printing based on received data to be printed; section for detecting the number of printed sheets for 10 detecting the number of sheets of printed matter printed by the network printer; printed data quantity detecting section for detecting the quantity of printed data; and status information sending section for sending status information including the number of printed sheets detected by the section 15 for detecting the number of printed sheets and the data quantity detected by the printed data quantity detecting section, to the printer management terminal; and

the printer management terminal comprising: status information receiving section for receiving the status 20 information; and consumption ratio calculating section for calculating the ratio of the consumption quantity to the number of printed sheets based on the status information received by the status information receiving section .

25 14. The printer management system according to claim 13; wherein

the printer management terminal further comprises status information storing section for storing the status information;

the status information receiving section receives the 5 status information and stores the received status information in the status information storing section; and the consumption ratio calculating section calculates an average consumption quantity per print sheet by specifying the total data quantity from a predetermined reference point of time based on the data 10 quantity included in the status information in the status information storing section, estimating the total consumption quantity of the consumables from the predetermined reference point of time from a predetermined arithmetic expression based on the specified total data quantity, specifying the total 15 number of printed sheets from the predetermined reference point of time based on the number of printed sheets included in the status information in the status information storing section, and dividing the total consumption quantity by the total number of printed sheets.

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15. A printer management terminal communicatively connected to the network printer in the printer management system of claim 3; the printer management terminal comprising:

status information receiving section for receiving 25 status information including the utilization quantity, the number of printed sheets and the number of activations; and consumption ratio calculating section for calculating the

ratio of the consumption quantity to the number of printed sheets based on the status information received by the status information receiving section.

5 16. A printer management terminal communicatively connected to the network printer in the printer management system of claim 13; the printer management terminal comprising:

status information receiving section for receiving status information including the number of printed sheets and  
10 the data quantity; and consumption ratio calculating section for calculating the ratio of the consumption quantity to the number of printed sheets based on the status information received by the status information receiving section.

15 17. A network printer communicatively connected to the printer management terminal in the printer management system of claim 3; the network printer comprising:

utilization quantity detecting section for detecting a utilization quantity of the consumables; section for detecting  
20 the number of printed sheets for detecting the number of sheets of printed matter printed by the network printer; section for counting the number of activations for counting the number of activations of the network printer; and status information sending section for sending status information including the utilization quantity detected by the utilization quantity detecting section, the number of printed sheets detected by  
25 the section for detecting the number of printed sheets and

the number of activations counted by the section for counting the number of activations, to the printer management terminal.

18. A network printer communicatively connected to the  
5 printer management terminal in the printer management system  
of claim 13; the network printer comprising:

printing section for performing printing based on received data to be printed; section for detecting the number of printed sheets for detecting the number of sheets of printed  
10 matter printed by the network printer; printed data quantity detecting section for detecting the quantity of printed data; and status information sending section for sending status information including the number of printed sheets detected by the section for detecting the number of printed sheets and  
15 the data quantity detected by the printed data quantity detecting section, to the printer management terminal.

19. A program for a terminal, to be executed by the printer management terminal of claim 15, the printer management  
20 terminal consisting of a computer, and the program being for executing processing to be realized as:

status information receiving section for receiving status information including the utilization quantity, the number of printed sheets and the number of activations; and  
25 consumption ratio calculating section for calculating the ratio of the consumption quantity to the number of printed

sheets based on the status information received by the status information receiving section .

20. A program for a terminal, to be executed by the printer  
5 management terminal of claim 16; the printer management terminal consisting of a computer, and the program being for executing processing to be realized as:

status information receiving section for receiving status information including the number of printed sheets and  
10 the data quantity; and consumption ratio calculating section for calculating the ratio of the consumption quantity to the number of printed sheets based on the status information received by the status information receiving section.

15 21. A program for a printer, to be executed by the network printer of claim 17; the network printer consisting of a computer, and the program being for executing processing to be realized as:

utilization quantity detecting section for detecting a  
20 utilization quantity of the consumables; section for detecting the number of printed sheets for detecting the number of sheets of printed matter printed by the network printer; section for counting the number of activations for counting the number of activations of the network printer; and status information  
25 sending section for sending status information including the utilization quantity detected by the utilization quantity detecting section, the number of printed sheets detected by

the section for detecting the number of printed sheets and the number of activations counted by the section for counting the number of activations, to the printer management terminal.

5 22. A program for a printer, to be executed by the network printer of claim 18; the network printer consisting of a computer, and the program being for executing processing to be realized as:

printing section for performing printing based on  
10 received data to be printed; section for detecting the number of printed sheets for detecting the number of sheets of printed matter printed by the network printer; printed data quantity detecting section for detecting the quantity of printed data; and status information sending section for sending status  
15 information including the number of printed sheets detected by the section for detecting the number of printed sheets and the data quantity detected by the printed data quantity detecting section, to the printer management terminal.

20 23. A device management method for managing the quantity of consumables consumed by operation of a device, the method comprising:

a utilization degree obtaining step of obtaining a utilization degree indicating a degree of utilization of the  
25 consumables; a generation quantity obtaining step of obtaining the quantity of a product generated by consumption of the consumables; a step of counting the number of activations for

counting the number of activations of the device; and a consumption ratio calculating step of calculating the ratio of the consumption quantity to the generation quantity based on the utilization degree obtained at the utilization degree 5 obtaining step, the generation quantity obtained at the generation quantity obtaining step and the number of activations counted at the step of counting the number of activations.

10 24. A device management method for managing the quantity of consumables consumed by operation of a device, the device generating a product to be generated through consumption of the consumables based on given data to be generated;

15 and the device management method comprising: a generation quantity obtaining step of obtaining the quantity of the product; a data quantity obtaining step of obtaining the quantity of generated data; and a consumption ratio calculating step of calculating the ratio of the consumption quantity to 20 the generation quantity based on the generation quantity obtained at the generation quantity obtaining step and the data quantity obtained at the data quantity obtaining step.